



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/750,864

01/05/2004

Masaaki Hirano

50395-243

3238

7590 04/19/2007
McDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

DEGHAN, QUEENIE S

ART UNIT

PAPER NUMBER

1731

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

04/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/750,864

Applicant(s)

HIRANO ET AL.

Examiner

Queenie Dehghan

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 25-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 1-24 in the reply filed on January 22, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). This election requirement is deemed proper and is made FINAL.

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what the metes and bounds of the limitation "the infrared rays traveling through the solid portion forming the wall of the pipe" are.

Art Unit: 1731

4. Claim 12 recites the limitation " the infrared rays traveling through the solid portion forming the wall of the pipe " in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Yokota et al.

(4,793,842). Yokota et al. discloses a method for producing optical fibers comprising:

(a) a drying step to reduce the amount of hydrogen atom-containing substances in the glass pipe (col. 3 lines 25-34);

(b) a sealing step to seal one end of the glass pipe (col. 5 lines 21-25); and

(c) a collapsing step to collapse the glass pipe to obtain a solid body (col. 5 lines 30-33).

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Barns et al.

(4,842,626). Barns et al. disclose a drying, sealing and collapsing step, wherein the hydrogen atom-containing substances in a glass pipe is reduced (claim 1, col. 1 lines 20-24).

Art Unit: 1731

8. Claims 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Kamiya et al. (4,772,303). Regarding claim 2, Kamiya et al. disclose a method for producing an optical fiber comprising:

(a) a drying step to heat the glass pipe at a temperature of 550°C or below; (b) a sealing step to seal one end of the glass pipe (col. 3 lines 11-26); and (c) a collapsing step to collapse the glass pipe to obtain a solid body (col. 3 lines 60-68).

9. Regarding claims 3 and 4, Kamiya et al. disclose a drying temperature range of 100°C to 500°C (col. 3 lines 21-22), which is clearly above 60°C and/or 300°C.

10. Regarding claim 6, Kamiya et al. disclose in figure 2, a furnace 51 for heating the tube in the drying step, which clearly covers a longitudinal range including and wider than the section of the tube comprising the inner layer 30, which is the section of the tube exposed to the collapsing temperature at furnace 33.

11. Regarding claim 13, Kamiya discloses reducing the pressure in the pipe to below 4 kPa in the drying step (col. 2 lines 39-49, col. 3 lines 18-41).

12. Regarding claim 15, Kamiya discloses a glass depositing step for the inner surface of the tube (col. 2 lines 15-20).

13. Regarding claim 24, Kamiya discloses the pressure in the glass tube is below 4kPa when the tube is being collapsed (col. 4 lines 60-65).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of DiGiovanni et al. (6,966,201). Kamiya et al. disclose a first drying step at a temperature range of 100°C to 500°C, wherein 100°C clearly falls within the range of 60-200°C. DiGiovanni et al. teach a purify step followed by a drying step at a temperature of 700°C, which is above 300°C (col. 5 line 62 to col. 6 line 7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the drying step at 700°C of DiGiovanni et al. in the process of Kamiya et al. in order further remove moisture.

Art Unit: 1731

17. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Barns et al. (4,842,626). Kamiya et al. fail to disclose the specific content of the drying gas used. Barns et al. teach the drying of the inside of a glass tube by utilizing a gas containing less than 10 ppm hydrogen atom-containing substances (claim 1). Barns et al. further indicate blowing a volume of drying gas through the tube could be high enough to potentially create an increased pressure in the tube. It is the position of the Examiner that there is no reason not to believe this amount of drying gas is not at least 10 times the inner volume of the pipe, especially since it is capable of creating an increase pressure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the drying gas with such volume and H content in the process of Kamiya et al. in order to allow for the proper removal of the OH in the glass tube, as indicated by Barns et al.

18. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Onishi et al. (Derwent Abstract of JP 08-067524). Kamiya et al. fail to disclose holding pipes. Onishi et al. teach holding pipes connected to at least one end of a glass tube for MCVD processes, wherein the holding pipe radiates to the outside of the tube (drawing 1a, abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize such a holding pipe in the process of Kamiya to allow for the handling of the tube and opening for the flow of various drying gases. Although not mentioned specifically, since the holding pipe of Onishi et al. allows for the passing of gases through the pipe and the tube, it would have been obvious to one of ordinary skill in the art at the time the

Art Unit: 1731

invention was made to expect that since the pipe is in connection with the tube and in the drying process of the Kamiya, drying gases flowing to the tube would have simultaneously remove hydroxyl groups from the holding pipe as well.

19. Claims 10 and 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Kunio (JP 62-226829). Kamiya discloses changing pressures in the tube during drying, after the sealing step, but do not disclose a first stage of reducing and second stage of increasing pressure. Kunio teaches a method for manufacturing optical fibers comprising of collapsing a tube and drying the tube in a two stage process including reducing the pressure of the glass pipe and introducing a dried gas into the pipe, essentially raising the pressure inside the tube (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the pressure stages of Kunio in the process of Kamiya et al. in order eliminate contaminates in the tube before drying the tube with a drying gas.

20. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Homa (2003/0213268). Kamiya et al. fail to disclose a drying time. Homa teaches drying a glass tube for 1 hr ([0033]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the drying time of Homa in the process of Kamiya in order to ensure reduction of the hydroxyl groups in the glass tube.

21. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Chang et al. (2002/0194877). Kamiya et al. fail to disclose inserting a rod in the tube. Chang et al. suggest the many known ways to manufacture

Art Unit: 1731

an optical fiber preform including deposition inside a tube and inserting a rod into a tube ([0005], [0027], [0028]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method step of inserting a rod into the tube, as suggest by Chang et al., because it is a well known method to manufacture a preform for optical fiber and to allow for overcladding of a rod.

22. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Homa (2003/0213268) and Yokota et al. (4,793,842). Kamiya et al. fail to disclose an etching step. It is apparent to one skill in the art to know the importance of removing moisture in the many method steps in manufacturing an optical preform. Homa teaches a variation of the process wherein a glass tube is etched with a gas and then dried ([0033]). Yokota et al. teach another variation where etching of the glass tube is done with drying the tube (col. 3 lines 24-42). Both Homa and Yokota et al. teach the need to dry the glass tub to ensure that hydroxyl groups are removed along the many various steps in manufacturing a preform. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the combination of steps of drying, etching, and drying or etching and drying, as suggested by Homa and Yokota et al. in the process of Kamiya et al. in order to ensure that hydroxyl groups have been removed from the tube during any number of various steps in the manufacturing process. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the etching step in a longitudinal range, similarly to the drying step of Kamiya as

Art Unit: 1731

discussed in claim 6 above, in order to properly encompass the critical optical fiber region comprising the core.

23. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of DiGiovanni et al. (6,966,201). Kamiya et al. fail to disclose a purifying step specifically. DiGiovanni et al. teach drying a glass tube, followed by a chemical purifying step with chlorine gas and another drying step (col. 5 lines 18-27, 62-66, col. 6 lines 4-7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the purifying step of DiGiovanni et al. in the process of Kamiya et al. in order to purify the soot body located within the tube.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1731

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Q Dehghan


STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700